

[IEEE HOME](#) | [SEARCH IEEE](#) | [SHOP](#) | [WEB ACCOUNT](#) | [CONTACT IEEE](#)



[Membership](#) [Publications/Services](#) [Standards](#) [Conferences](#) [Careers/Jobs](#)

**IEEE Xplore®**  
RELEASE 1.8

Welcome  
United States Patent and Trademark Office

[Help](#) [FAQ](#) [Terms](#) [IEEE Peer Review](#)

**Quick Links**



Welcome to IEEE Xplore®

- Home
- What Can I Access?
- Log-out

#### Tables of Contents

- Journals & Magazines
- Conference Proceedings
- Standards

#### Search

- By Author
- Basic
- Advanced
- CrossRef

#### Member Services

- Join IEEE
- Establish IEEE Web Account
- Access the IEEE Member Digital Library

#### IEEE Enterprise

- Access the IEEE Enterprise File Cabinet

**Try our New Full-text Search Prototype** **GO**

[Help](#)

- 1) Enter a single keyword, phrase, or Boolean expression.  
Example: acoustic imaging (means the phrase acoustic imaging plus any stem variations)
- 2) Limit your search by using search operators and field codes, if desired.  
Example: optical <and> (fiber <or> fibre) <in> ti
- 3) Limit the results by selecting Search Options.
- 4) Click Search. See [Search Examples](#)

bar code and (detect\* or extract\*) and rotat\*

**Start Search** **Clear**

Note: This function returns plural and suffixed forms of the keyword(s).

Search operators: <and> <or> <not> <in> [More](#)

Field codes: au (author), ti (title), ab (abstract), jn (publication name), de (index term) [More](#)

#### Search Options:

##### Select publication types:

- IEEE Journals
- IEE Journals
- IEEE Conference proceedings
- IEE Conference proceedings
- IEEE Standards

##### Select years to search:

From year:   to

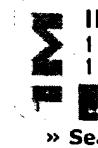
##### Organize search results by:

Sort by:    
In:   order

List   Results per page

[Home](#) | [Log-out](#) | [Journals](#) | [Conference Proceedings](#) | [Standards](#) | [Search by Author](#) | [Basic Search](#) | [Advanced Search](#) | [Join IEEE](#) | [Web Account](#)  
[New this week](#) | [OPAC Linking Information](#) | [Your Feedback](#) | [Technical Support](#) | [Email Alerting](#) | [No Robots Please](#) | [Release Notes](#) | [IEEE Online Publications](#) | [Help](#) | [FAQ](#) | [Terms](#) | [Back to Top](#)

Copyright © 2004 IEEE — All rights reserved

[IEEE HOME](#) | [SEARCH IEEE](#) | [SHOP](#) | [WEB ACCOUNT](#) | [CONTACT IEEE](#)[Membership](#) [Publications/Services](#) [Standards](#) [Conferences](#) [Careers/Jobs](#)**IEEE Xplore®**  
RELEASE 1.8Welcome  
United States Patent and Trademark Office[Help](#) [FAQ](#) [Terms](#) [IEEE Peer Review](#)**Quick Links** 

» Se.

**Welcome to IEEE Xplore®**

- Home
- What Can I Access?
- Log-out

**Tables of Contents**

- Journals & Magazines
- Conference Proceedings
- Standards

**Search**

- By Author
- Basic
- Advanced
- CrossRef

**Member Services**

- Join IEEE
- Establish IEEE Web Account
- Access the IEEE Member Digital Library

**IEEE Enterprise**

- Access the IEEE Enterprise File Cabinet

[Print Format](#)[Home](#) | [Log-out](#) | [Journals](#) | [Conference Proceedings](#) | [Standards](#) | [Search by Author](#) | [Basic Search](#) | [Advanced Search](#) | [Join IEEE](#) | [Web Account](#) | [New this week](#) | [OPAC Linking Information](#) | [Your Feedback](#) | [Technical Support](#) | [Email Alerting](#) | [No Robots Please](#) | [Release Notes](#) | [IEEE Online Publications](#) | [Help](#) | [FAQ](#) | [Terms](#) | [Back to Top](#)

Copyright © 2004 IEEE — All rights reserved